Monitor.
Analyze.
Optimize.

Step into the world of energy optimization with the energy management products from TQ Automation.

MONITOR. ANALYZE. OPTIMIZE.

New legal requirements provide an opportunity

- The European Union's new energy efficiency guidelines require all companies that don't fit the EU definition of "small and medium-sized enterprises" to monitor their energy consumption regularly
- Energy management enables municipalities and other local governments to easily and inexpensively document the energy consumed by their assets
- The first step toward fulfilling the legal requirements is an energy audit (analysis of the current status of energy consumption)
- The findings of the audit serve as the basis for an energy consultation to derive appropriate measures to be taken

The advantages of an energy management system in compliance with ISO 50001

- Proven and reliable system with established rules as opposed to an energy audit in accordance with DIN EN 16247–1
- Immediate, long-term, ongoing improvement of energy efficiency
- Potential savings become clear and can be implemented
- Tax credits in accordance with $55 of the energy tax code and/or $10 of the electricity tax code

The Energy Manager
Your first step toward energy savings

Using the Energy Managers makes your consumption transparent and easy to document. The modular system can be configured to meet your precise requirements and can be subsequently adjusted to accommodate additional wishes.

With up to 96 potential measuring points per Energy Manager, TQ Automation's EM is unbeatable in terms of cost efficiency.
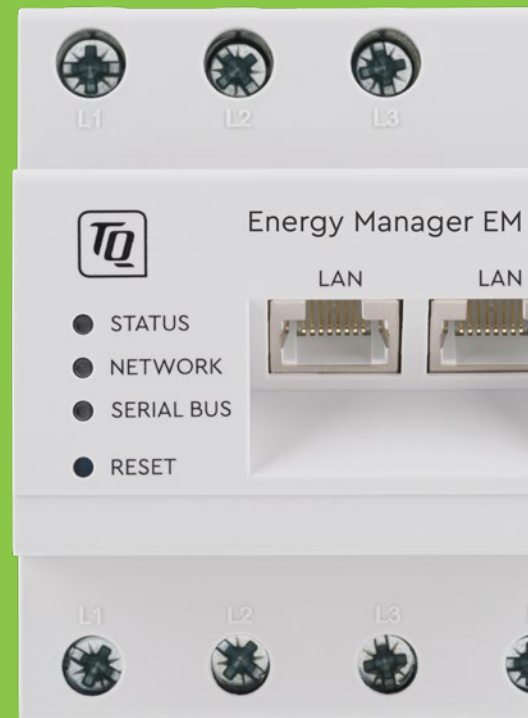
The Energy Manager is ...

• the first step toward lowering your energy costs

• easy to install and connect

• a cost-efficient, high-quality solution

• accurate and easy to evaluate

• future-proof and modularly expandable

• the basis for modern energy management

Quick installation and centralized analysis

Convenient installation and centralized, transparent evaluation with attractive visualizations – these two factors are a top priority for us.

• The patented Energy Manager can be installed directly on the subdistribution boards

• Convenient, space-saving integration using existing top hat rails

• Additional external current converters can be connected as required

• Direct connection up to 63A on the device itself (higher nominal currents with current converter)

• Built-in communication module and integrated memory storage

• Diverse protocol types and be selected freely

• Data transfer using LAN, WLAN or RS485 interface

• Software for visualization and archiving

• Automatic cost-center reporting

• No additional communication devices required

Long-term reduction
of energy costs.

The Energy Manager ensures you have access to all the data you need at any time. After all, there's more to be done than simply measuring your consumption. Documentation and analysis are indispensible for developing cost-saving measures.

- Built-in communication processor with at least 1 GB of storage for convenient connection to existing networks
- Integrated WEB-GUI for fast visualization
- Built-in memory
- CSV data export (via email or FTP/SFTP)
- Visualization using apps (IOS and Android operating systems) in addition to WEB-GUI
- Standard communication via Modbus TCP & RTU (master-slave mode)
- Measuring data can also be transmitted via http request (JSON format)
- Optional extension: Centralized data archive plus backup
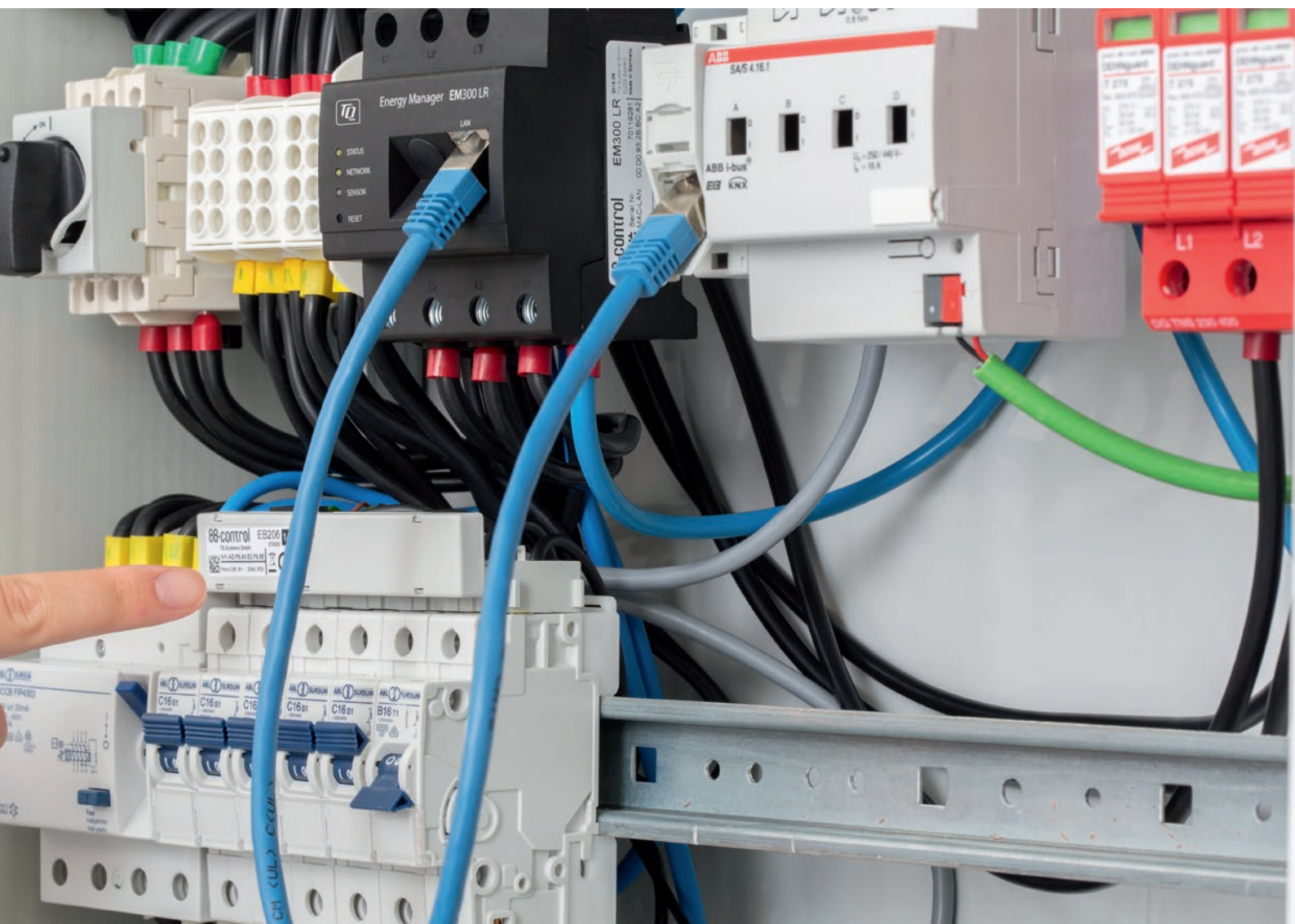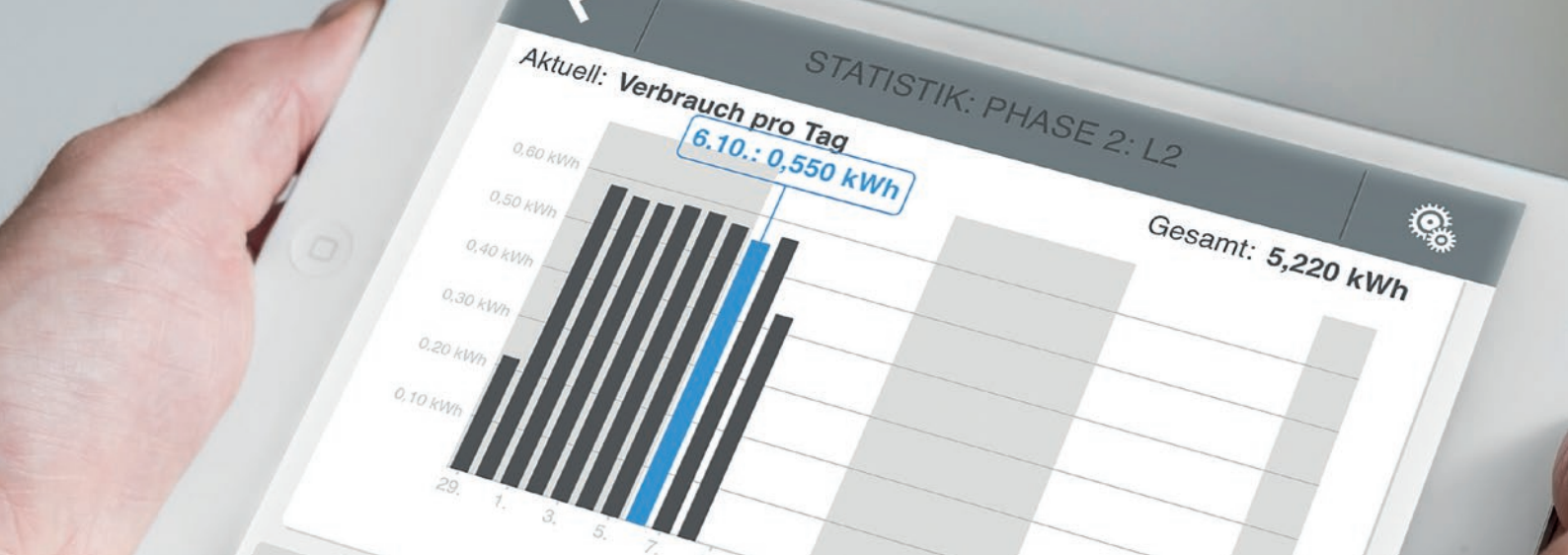
Accurate, detailed statements
for enhanced clarity.

Just as personnel and production costs can be allocated to each individual department, you can use TQ Automation to accurately identify precisely where energy is being consumed.

Using the Energy Manager in combination with the centralized analysis software Efficio gives you many ways to evaluate and process your energy data.

- Precise allocation to specific cost centers
- Traditional reporting functions
- Visualization of data in various different output types
- Database and archiving functions
- Data transmission via email or FTP/SFTP
- Links to Intranet and Internet
- Cloud-based solutions are also available
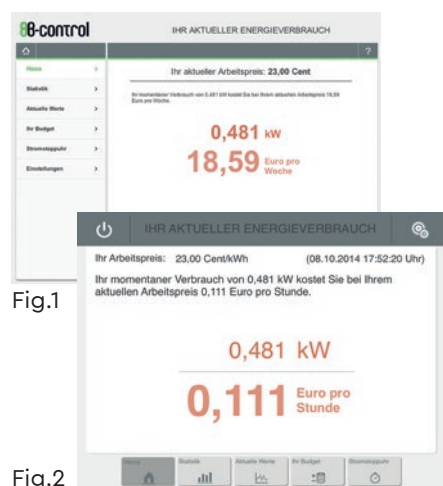- Other software can also be used in connection with the Energy Manager using Modbus TCP or RTU
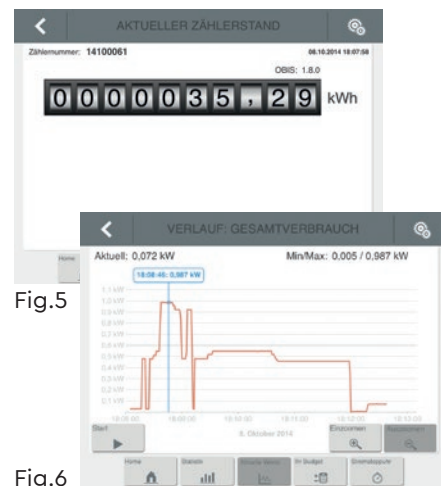

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5

Fig.6

Figure 1 & 2: Current energy consumption, Figure 3: Electricity consumption of one phase in kWh,
Figure 4: Electricity consumption of one phase in Euro, Figure 5: EM meter reading, Figure 6: Visualization of live values

Load management and
demand side management

Intelligent energy management can do much more than simply record data. Automated processes make it possible to achieve positive results quickly. With the help of additional components from the TQ Automation BA series you can take the next step toward intelligent load management. It's even possible to intelligently automate charging stations.
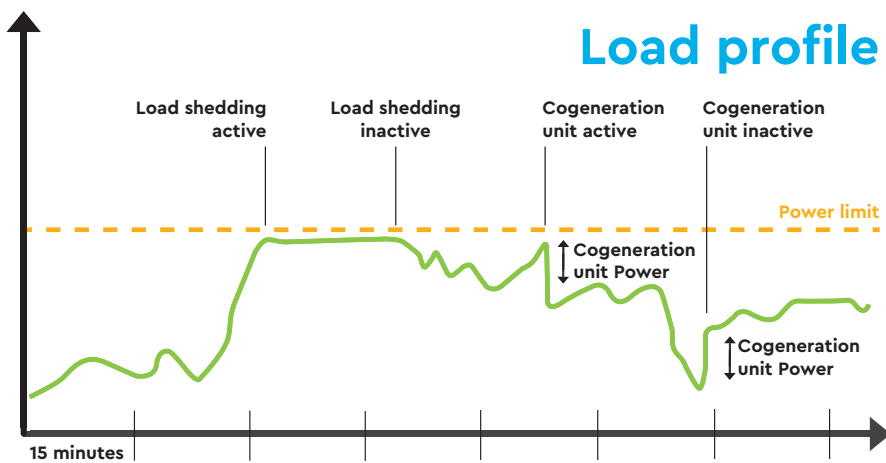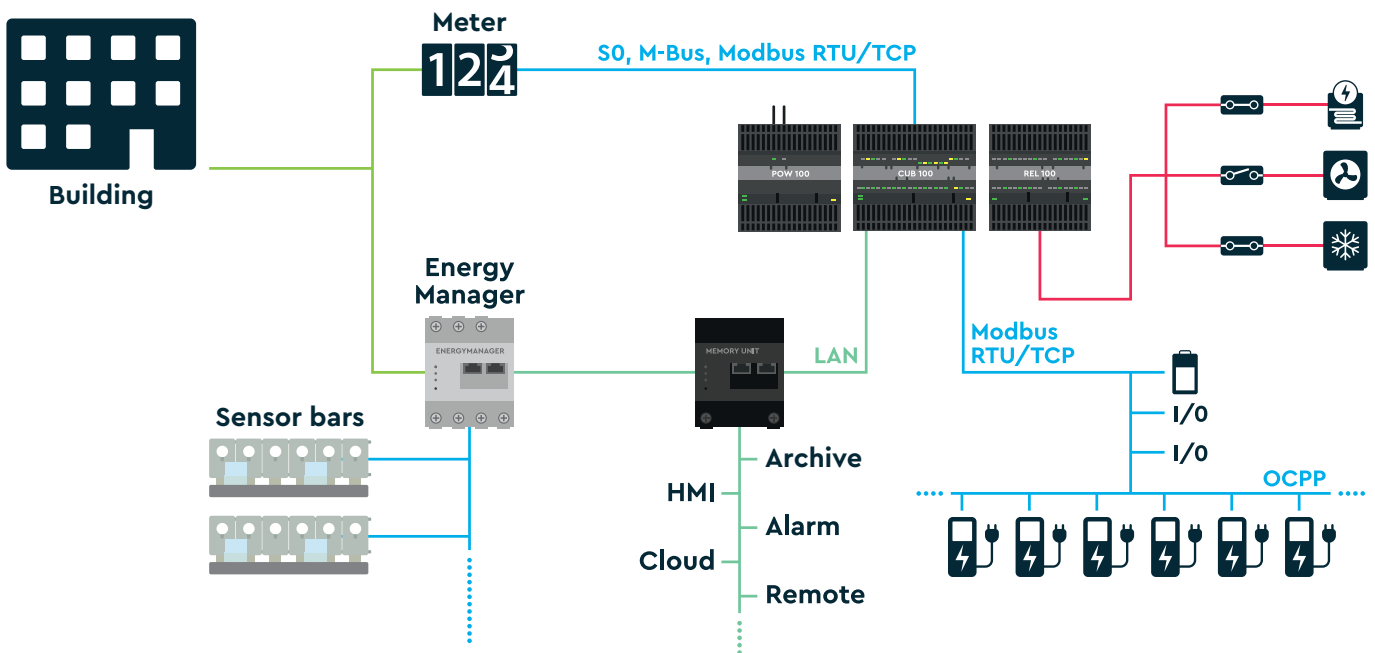

Load profile

This is an example of a load profile using a load profile diagram with corresponding counter-regulation by adding power from a thermal power station (Cogeneration unit).

These are possible settings for turning off individual power units (cycle protection, blocking times, etc.)

Load limitation for enhanced control

On the basis of the effective power rate, and synchronized with the electricity meter, the software module calculates the average power rate and forecasts the expected power consumption for each 15-minute measuring period. If the forecast exceeds the supply rate, individual units are targeted for shutoff and accumulators are added.

- Electricity consumption points are targeted for shutoff on the basis of the preset shutoff sequence

- Electrical power sources are added on the basis of the shutoff sequence (cogeneration unit, emergency power supply, photovoltaic supply unit, battery storage)

- Specific characteristics of consumption points can be taken into consideration
  - for the protection of respective generators
  - to ensure emergency operation
  - to prevent shutoff during primary consumption periods

Current load management conditions

Shutoff levels with delay times

Complete control with the load management basic module

- Measurement of how much electrical power is being consumed at the moment

- Calculation of an average value for a 15-minute measuring period

- Calculation of supply rate for atypical network usage

- Synchronization with the measuring period used by the energy supplier utility

- Sequential load cutoff or powering up of additional electricity sources

- Optimization for pre-set/calculated supply rate or primarily for installed power input (black-out protection)

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